



400

|            | 210                      | 220                            | 230  | 240                          | 250                         | 260                  | 270                   | 280           | 290   | 300 | 310 | 320 | 330 | 340 | 350 | 360 | 370 | 380 | 390 |
|------------|--------------------------|--------------------------------|--|------------------------------|-----------------------------|----------------------|-----------------------|---------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 32413661.y | NMLAQVLSLSDIF            | ISPLEDIFYVELLGTDLHRLLNSRP      | PEKOFIYFVFLYQIMRGLKYVHSAGVHRDLKPNSNLLN     | ENCDLKIICDFECLARICDPO        | MTCYVSTRYYRAPEIMLTWOKDVEVDI | SLCICIAEMLECK        | PLFGK                 |               |       |     |     |     |     |     |     |     |     |     |     |
| 39952359.y | ISLSLDIF                 | ISPLEDIFYVELLGTDLHRLLNSRP      | PEKOFIYFVFLYQIMRGLKYVHSAGVHRDLKPNSNLLN     | ENCDLKIICDFECLARICDPO        | MTCYVSTRYYRAPEIMLTWOKDVEVDI | SLCICIAEMLECK        | PLFGK                 |               |       |     |     |     |     |     |     |     |     |     |     |
| 6323142.y  | ILCQDIF                  | ISPLEDIFYVIELQGTDLHRLLNSRP     | PEKOFIYFVFLYQILRGKLYVHSAGVHRDLKPNSNLLN     | ENCDLKIICDFECLARICDPO        | MTCYVSTRYYRAPEIMLTWOKDVEVDI | SLCICIAEMLECK        | PLFGK                 |               |       |     |     |     |     |     |     |     |     |     |     |
| 19113755.y | ISLSLDIF                 | ISPFEDIFYVIELQGTDLHRLLNSRP     | LETBFIYFVFLYQILRGKLYVHSAGVHRDLKPNSNLLN     | ENCDLKIICDFECLARICDPO        | MTCYVSTRYYRAPEIMLTWOKDVEVDI | SLCICIAEMIECK        | PLFGK                 |               |       |     |     |     |     |     |     |     |     |     |     |
| 32564571.w | IOPINSET                 | VDSLKDIIYIVQCLMETDLYKLILTQK    | LSNDHVCFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN    | TTCIDLKIICDFECLARVDPQTDTHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 32564569.w | IOPINSET                 | VDSLKDIIYIVQCLMETDLYKLILTQK    | LSNDHVCFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN    | TTCIDLKIICDFECLARVDPQTDTHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 31239139.i | IRDILRVPs                | IEQMKDVIVYVQCLMETDLYKLILTQK    | LSNDHICVFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN   | TTCIDLKIICDFECLARVDPHDITHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 17977692.f | IRDILRVDs                | IDOMRCLMETDLYKLILTQK           | LSNDHICVFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN   | TTCIDLKIICDFECLARVDPHDITHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 8393331.m  | IRDILRPA                 | LEAMRDVYIVDLMETDLYKLILKSQQ     | LSNDHICVFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN   | TTCIDLKIICDFECLARVDPHDITHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 21489933.m | IRDILRPA                 | LEAMRDVYIVDLMETDLYKLILKSQQ     | LSNDHICVFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN   | TTCIDLKIICDFECLARVDPHDITHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| Erk1.h     | IRDILRAST                | LEANRDVYIVDLMETDLYKLILKSQQ     | LSNDHICVFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN   | TTCIDLKIICDFECLARVDPHDITHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 1pmc_ERK2  | INDIIRAPT                | IEQMKDVIVYVHLMGBDLYKLILTQH     | LSNDHICVFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN   | TTCIDLKIICDFECLARVDPHDITHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 28461209.m | INDIIRAPT                | IEQMKDVIVYVQCLMETDLYKLILTQH    | LSNDHICVFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN   | TTCIDLKIICDFECLARVDPHDITHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 6754632.m  | INDIIRAPT                | IEQMKDVIVYVQCLMETDLYKLILTQH    | LSNDHICVFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN   | TTCIDLKIICDFECLARVDPHDITHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 16758698.m | INDIIRAPT                | IEQMKDVIVYVQCLMETDLYKLILTQH    | LSNDHICVFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN   | TTCIDLKIICDFECLARVDPHDITHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| Erk2.h     | INDIIRAPT                | IEQMKDVIVYVQCLMETDLYKLILTQH    | LSNDHICVFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN   | TTCIDLKIICDFECLARVDPHDITHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 40254655.d | INDIIRAPT                | IDQMKDVIVYVQCLMETDLYKLILTQH    | LSNDHICVFYFLYQILRGKLYVHSANVHLRDLKPNSNLLN   | TTCIDLKIICDFECLARVDPHDITHTG  | ELTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 32421451.y | IIDDKRS                  | YETFNEVYLQCELMETDMHRVIRTQE     | LSDDHCQYFIYQDTRALKAMHSANVHLRDLKPNSNLLN     | ANGDLKVCDCLARSAASQEDNS       | GMTEYVATR                   | YRAPEIMLTFKEYTKAIDV  | SVCICILAEMLSCK        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 39961816.y | IIDDKRS                  | YETFNEVYLQCELMETDMHRVIRTQE     | LSDDHCQYFIYQDTRALKAMHSANVHLRDLKPNSNLLN     | ANGDLKVCDCLARSAASQEDNS       | GMTEYVATR                   | YRAPEIMLTFKEYTKAIDV  | SVCICILAEMLSCK        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 19114921.y | IIDPILPPPs               | YQEELDYYIVYVQCLMETDLYRVVSKSQP  | LSDDHCQYFIYQDTRALKAMHSANVHLRDLKPNSNLLN     | ANGDLKVADPSTTAQGPNP          | GMTEYVATR                   | YRAPEIMLSFRYSSKAIDL  | SVCICILAEMLSAR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 6321477.y  | IIDKVRVS                 | IDKLNNAVYVYELMETDLYKLILQH      | SNCDLKVADPCLARCLASSSDRET-LV                | GMTEYVATR                    | YRAPEIMLNSKGVTKSIDV         | SVCICILAEMWSCK       | PLFGK                 |               |       |     |     |     |     |     |     |     |     |     |     |
| 6319455.y  | INDIIRDS                 | FENFNEVYVYQCLMOTDHLRVIITQH     | LSDDHCQYFIYQDTRALKAMHSANVHLRDLKPNSNLLN     | SNCDLKVADPCLARCLASSSDRET-LV  | GMTEYVATR                   | YRAPEIMLNSKGVTKSIDV  | SVCICILAEMWSCK        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 34870823.m | IKODILRPTV               | YGEFRSYYIVVYDLMESDLHQIISSQP    | LTLGEHVRVFLYQILRGKLYVHSANVHLRDLKPNSNLLN    | ENGELKIICDFGCMARGLCTSPAHEQ   | QOQSMTEYVATR                | YRAPEEMLTSAKYSRADMV  | SVCICILAELFLR         | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 6754634.m  | IKODILRPTV               | YGEFRSYYIVVYDLMESDLHQIISSQP    | LTLGEHVRVFLYQILRGKLYVHSANVHLRDLKPNSNLLN    | ENGELKIICDFGCMARGLCTSPAHEQ   | YMTMEYVATR                  | YRAPEEMLSLHEYTQAIIDL | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| Erk5.h     | IKODILRPTV               | YGEFRSYYIVVYDLMESDLHQIISSQP    | LTLGEHVRVFLYQILRGKLYVHSANVHLRDLKPNSNLLN    | ENGELKIICDFGCMARGLCTSPAHEQ   | YMTMEYVATR                  | YRAPEEMLSLHEYTQAIIDL | SVCICILAEMLSNR        | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| Erk3.h     | VEELLPSPSGSQLTDDVGSLTELN | VIVYVYVYMETDLANVLFQGP          | LTLGEHARFMYQYLLRGLKLYVHSANVHLRDLKPNSNLLN   | ELSECVLWIKYRSLRLLSNNYTKAIDM  | ELSECVLWIKYRSLRLLSNNYTKAIDM | AAICIAEMLTCK         | TLFGCA                |               |       |     |     |     |     |     |     |     |     |     |     |
| 31560797.m | VEELLPSPSGSQLTDDVGSLTELN | VIVYVYVYMETDLANVLFQGP          | LTLGEHARFMYQYLLRGLKLYVHSANVHLRDLKPNSNLLN   | ELSECVLWIKYRSLRLLSNNYTKAIDM  | ELSECVLWIKYRSLRLLSNNYTKAIDM | AAICIAEMLTCK         | TLFGCA                |               |       |     |     |     |     |     |     |     |     |     |     |
| 13928856.m | VEELLPSPSGSQLTDDVGSLTELN | VIVYVYVYMETDLANVLFQGP          | LTLGEHARFMYQYLLRGLKLYVHSANVHLRDLKPNSNLLN   | ELSECVLWIKYRSLRLLSNNYTKAIDM  | ELSECVLWIKYRSLRLLSNNYTKAIDM | AAICIAEMLTCK         | TLFGCA                |               |       |     |     |     |     |     |     |     |     |     |     |
| 27369906.m | VYEVLPKPGs               | DLOGELFKPSVAYIVYVYMETDLACLLQGT | LTEPHAKFQYMYQYLLRGLKLYVHSANVHLRDLKPNSNLLN  | ELSECVLWIKYRSLRLLSNNYTKAIDM  | ELSECVLWIKYRSLRLLSNNYTKAIDM | AAICIAEMLTCK         | MLFGA                 |               |       |     |     |     |     |     |     |     |     |     |     |
| 34932377.m | VYEVLPKPGs               | DLOGELFKPSVAYIVYVYMETDLACLLQGT | LTEPHAKFQYMYQYLLRGLKLYVHSANVHLRDLKPNSNLLN  | ELSECVLWIKYRSLRLLSNNYTKAIDM  | ELSECVLWIKYRSLRLLSNNYTKAIDM | AAICIAEMLTCK         | MLFGA                 |               |       |     |     |     |     |     |     |     |     |     |     |
| Erk4.h     | VYEVLPKPGt               | DLOGELFKPSVAYIVYVYMETDLACLLQGT | LTEPHAKFQYMYQYLLRGLKLYVHSANVHLRDLKPNSNLLN  | ELSECVLWIKYRSLRLLSNNYTKAIDM  | ELSECVLWIKYRSLRLLSNNYTKAIDM | AAICIAEMLTCK         | MLFGA                 |               |       |     |     |     |     |     |     |     |     |     |     |
| 25141338.w | VLDMFATEGA               | HGKDIIYVWDLMETDLHQLISRQ        | TIMEHOFYFYQYLLRGLKLYVHSACIYIHRDLKPNSNLLN   | GDCDLRIIADEGCMARAYASASTVR    | NGVGMTOVYSTR                | YRAPEEILSMEVDTVVDL   | AAICIAEMLTCK          | CLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 32563948.w | VLDMFATEGA               | HGKDIIYVWDLMETDLHQLISRQ        | TIMEHOFYFYQYLLRGLKLYVHSACIYIHRDLKPNSNLLN   | GDCDLRIIADEGCMARAYASASTVR    | NGVGMTOVYSTR                | YRAPEEILSMEVDTVVDL   | AAICIAEMLTCK          | CLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 32565867.w | SDPVLRESG                | SDQDYYIVVYDLMETDLISVLSNQ       | TIMEHOFYFYQYLLRGLKLYVHSACIYIHRDLKPNSNLLN   | EDCSLKIADPMSRGPSTKTTPTNTSPNA | NGVGMTOVYSTR                | YRAPEEILSMEVDTVVDL   | AAICIAEMLTCK          | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 25146947.w | LRFIFRKGP                | LGIDVFLVWDLMNNLHIIYGNED        | PEEBYVINFQYQYLLRGLKLYVHSACIYIHRDLKPNSNLLN  | QDGTLRIIADEGMAKCADNSSKH      | DDE                         | ECIYMMTOHVATL        | YRAPEELFVLP           | EILFGK        |       |     |     |     |     |     |     |     |     |     |     |
| 25146944.w | LRFIFRKGP                | LGIDVFLVWDLMNNLHIIYGNED        | PEEBYVINFQYQYLLRGLKLYVHSACIYIHRDLKPNSNLLN  | QDGTLRIIADEGMAKCADNSSKH      | DDE                         | ECIYMMTOHVATL        | YRAPEELFVLP           | EILFGK        |       |     |     |     |     |     |     |     |     |     |     |
| 27545428.m | LDLVIPIAKND              | RDIYLVFEEYDIDLNAVICKGR         | LIEDHICRQYQYLLRGLKLYVHSACIYIHRDLKPNSNLLN   | AACRVKIICDFCLARSLSL          | DFPEG                       | PGQQALTEYVATR        | YRAPEEVILSSRWYTPVQVDM | SVCICILAEMLRQ | PLFGK |     |     |     |     |     |     |     |     |     |     |
| 29244575.m | LDLVIPIAKND              | RDIYLVFEEYDIDLNAVICKGR         | LIEDHICRQYQYLLRGLKLYVHSACIYIHRDLKPNSNLLN   | AACRVKIICDFCLARSLIG          | DFPEG                       | PGQQALTEYVATR        | YRAPEEVILSSRWYTPVQVDM | SVCICILAEMLRQ | PLFGK |     |     |     |     |     |     |     |     |     |     |
| Erk7.h     | LDLVIPIAKND              | RDIYLVFEEYDIDLNAVICKGR         | LIEDHICRQYQYLLRGLKLYVHSACIYIHRDLKPNSNLLN   | AACRVKIICDFCLARSLIG          | DFPEG                       | PEDQVTEYVATR         | YRAPEEVILSSRWYTPVQVDM | SVCICILAEMLRQ | PLFGK |     |     |     |     |     |     |     |     |     |     |
| 25143964.w | LYNFEPADND               | RDIYLVFEEYDIDLNVILKGS          | DKDVKYIMCOLRAIRFLHSQVHLRDLKPNSVLLD         | ADCRVKIADDFCLARSLSSLEDYP     | QKMPDLTEYVATR               | YRSPEILLAAKR         | SLCICIAEMLICR         | ALFGCS        |       |     |     |     |     |     |     |     |     |     |     |
| 25143969.w | LYNFEPADND               | RDIYLVFEEYDIDLNVILKGS          | DKDVKYIMCOLRAIRFLHSQVHLRDLKPNSVLLD         | ADCRVKIADDFCLARSLSSLEDYP     | QKMPDLTEYVATR               | YRSPEILLAAKR         | SLCICIAEMLICR         | ALFGCS        |       |     |     |     |     |     |     |     |     |     |     |
| 24640802.f | LVDIFPKASNN              | LDGYLVFEEYDIDLNVILKGR          | VKDKWYKREVMYQYLLRGLKLYVHSACIYIHRDLKPNSNLLN | SKCRVKIADDFCLARSLSSRRIYDDL   | EDGQILTDYVATR               | YRAPEEILVARNYTKIDM   | GLCICIGEMIRK          | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 23509516.z | LMDVLPKAKND              | NDIYLVFEEYDIDLNVILKGR          | LDGYLVFEEYDIDLNVILKGR                      | NDIYLVFEEYDIDLNVILKGR        | NDKVPILTDYVATR              | YRAPEEILGSTH         | TEVQDM                | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 32189718.z | CRLFPFKSE                | EKDYYVYVAMDHIPDLSSVYNGAIT      | LDGYLVFEEYDIDLNVILKGR                      | LDGYLVFEEYDIDLNVILKGR        | NDKVPILTDYVATR              | YRAPEEILGSTH         | TEVQDM                | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |
| 23508338.z | LBDLIPPEDL               | LKDDELIVVETADSDLKKLRTPIF       | LDGYLVFEEYDIDLNVILKGR                      | LDGYLVFEEYDIDLNVILKGR        | NDKVPILTDYVATR              | YRAPEEILGSTH         | TEVQDM                | PLFGK         |       |     |     |     |     |     |     |     |     |     |     |









1210      1220      1230      1240

.....|.....|.....|.....|.....|.....|.....|.....

32413661.y  
39952359.y  
6323142.y  
19113755.y  
32564571.w  
32564569.w  
31239139.i  
17977692.f  
8393331.m  
21489933.m  
**Erk1.h**  
1pme\_ERK2  
28461209.m  
6754632.m  
16758698.m  
**Erk2.h**  
40254655.d  
32421451.y  
39961816.y  
19114921.y  
6321477.y  
6319455.y  
34870823.m  
6754634.m  
**Erk5.h**  
**Erk3.h**  
31560797.m  
13928856.m  
27369906.m  
34932377.m  
**Erk4.h**  
25141338.w  
32563948.w  
32565867.w  
25146947.w  
25146944.w  
27545428.m  
29244575.m  
**Erk7.h**  
25143964.w  
25143969.w  
24640802.f **AQNDQEELPVHHHKACRHRHHPNHHAPYDHMRPTEDDIQEADSLPESN**  
23509516.z **IDNEENKKNQDMTDYYNPINKTEKNKKRINFCKGEKKKTEEKCVSNE-**  
32189718.z  
23508338.z